

## IT IS CLAIMED:

1. A system for palliatively treating a pain-causing tumor on or in a bone, comprising:
  - 5 an instrument having a distal-end structure adapted to be inserted into the bone tumor, said tip being activatable to ablate tumor tissue, and connecting structure for connecting said distal-end structure to an activating device.
- 10 2. The system of claim 1, wherein the instrument includes a probe with a distal end, and at least one electrode movable from a retracted position within the probe to a deployed position extending from the probe's distal end, forming said distal-end structure when deployed.
- 15 3. The system of claim 2, wherein said instrument includes a plurality of curved, deployable electrodes which, when deployed, form an array of deployed electrodes that defines a substantially two-dimensional surface expanse or a three-dimensional volume within the tumor.
- 20 4. The system of claim 3, for use in treating a bone tumor on the exterior or interior surface of a compact region of a bone, wherein said electrodes, when deployed, form an array that defines a two-dimensional expanse that is coextensive with a portion of the surface of the compact bone region surrounded by said tumor.
- 25 5. The system of claim 3, wherein said electrodes, when deployed form a three-dimensional volume that encompasses said distal tip, or a three-dimensional volume that converges at said distal tip.
- 30 6. The system of claim 3, wherein the curvature of at least one of said electrodes is shapable, prior to use, such that the electrode(s), when inserted into the tumor, define a selected geometry within the tumor.

7. The system of claim 3, wherein at least one of said electrodes is a needle forming a conduit through which liquid can be injected into the tumor.

5           8. The system of claim 3, wherein said probe includes a conduit through which fluid can be injected into the region of the tumor.

9. The system of claim 1, wherein said connecting structure is adapted to connect said distal-end structure to a source of RF current.

10          10. A method of palliatively treating a pain-causing tumor on or in a bone, comprising:

locating the position of the bone tumor,  
positioning against or adjacent the located bone tumor, the distal end of an instrument having a distal-end structure which can be activated to ablate tissue, and  
15          with said tip inserted into the bone tumor, activating the tip under conditions effective to ablate at least a portion of the tumor.

20          11. The method of claim 10, wherein said distal-end structure includes at least one electrode, and said activating includes applying an RF current to said electrode(s).

25          12. The method of claim 10, wherein said instrument includes a probe with a distal end, and at least one electrode movable from a retracted position within the probe to a deployed position extending from the probe's distal end, to form said distal-end structure when deployed, and said method further includes deploying said electrode(s) when the distal end of the probe is positioned against or adjacent the bone tumor.

30          13. The method of claim 12, wherein said instrument includes a plurality of curved, deployable electrodes, and said deploying is effective to create an array of deployed electrodes that defines a substantially two-dimensional surface expanse or a three-dimensional volume within the tumor.

14. The method of claim 13, for use in treating a bone tumor on the exterior or interior surface of a compact region of a bone, wherein said electrodes, when deployed, create an array that defines a two-dimensional expanse that is coextensive with a portion of the surface of the compact bone region surrounded by said tumor.

5

15 The method of claim 13, wherein said electrodes, when deployed form a three-dimensional volume that encompasses said distal tip.

10 16. The method of claim 13, wherein said electrodes, when deployed form a three-dimensional volume that converges at said distal tip.

15 17. The method of claim 13, wherein the curvature of at least one of said electrodes is shapable, prior to said positioning, such that the electrode(s), when inserted into the tumor, define a selected geometry within the tumor.

18. The method of claim 10, wherein said distal-end structure includes at least one electrode, said activating includes applying an RF current to said electrode(s), and which further includes injecting a liquid into the tumor.

20 19. The method of claim 18, wherein said injecting includes injecting an electrolyte solution into the tumor, prior to or during said activating step, to enhance the conductivity of the tumor during the applying of RF current to the electrode(s).

25 20. The method of claim 18, wherein said injecting includes injecting a polymer liquid into the tumor, before, during or following said activating step, such that the needle and surrounding tumor region is at a temperature that allows introduction of the polymer solution through the needle and hardening at the site of injection.

30 21. The method of claims 19 or 20, wherein at least one of said electrode(s) is a needle through which said liquid can be injected into the tumor.

22. The method of claim 20, wherein said polymer liquid is a polymethylmethacrylate.

5           23. The method of claim 22, wherein said injecting includes injecting the liquid through an electrode needle, and said activating is effective to maintain the temperature of the polymer liquid above its glass transition temperature while the liquid is being injected into the tumor.

10          24. A method of injecting into an internal body site in a subject, a thermoset or thermoplastic polymer material, comprising

positioning against or adjacent the internal body site, the distal end of an instrument having a distal-end electrode needle which can be activated to produce localized heating,

15          with said tip inserted into or against body site, activating said needle under conditions effective to raise the temperature of said site, in the region of the needle,

injecting a thermoset or thermoplastic polymer liquid into the tumor, before, during or following said activating step, such that the needle and surrounding tumor region is at a temperature that allows introduction of the polymer solution through the needle and hardening at the site of injection.

20

25          25. The method of claim 24, for use in palliatively treating a pain-causing bone tumor, wherein said needle is positioned within the tumor, said activating step is effective to ablate tumor tissue by heating, and said polymer liquid when it thermoset or thermoplastics, is effective to stabilize movement the ablated tumor region.

25

30          26. The method of claim 25, wherein said polymer liquid is a polymethylmethacrylate, said injecting includes injecting the liquid through an electrode needle, and said activating is effective to maintain the temperature of the polymer liquid above its glass transition temperature while the liquid is being injected through the needle.